

Shipments of more than 20 Ci of Plutonium in DOT Specification Containers

DOE O 460.1B Paragraph 4.a.(2)(d) and DOE O 460.1B CRD Paragraph 3.d, "Additional Requirements for Plutonium Packaging," require – "Each **person/contractor**, who offers for transportation or transports quantities of plutonium in excess of 20 Curies per package may only use a packaging approved by the Assistant Secretary of Environmental Management or **another/a** Secretarial Officer/Deputy Administrator, NNSA or the NRC as meeting the requirements of 10 CFR 71.63."

In general, a DOE or NRC certified containers or a packaging authorized under a DOE Special Permit (old DOT Exemption) would meet the requirements of 10 CFR 71.63. This regulation mainly was for the use of DOT Specification Containers and primarily the DOT Specification 6M. Prior to January 26, 2004, 10 CFR 71.63 was rather complicated (see copy of the old 10 CFR 71.63 on second page) and that is why approval from the Assistant Secretary of Environmental Management was required.

On January 26, 2004 10 CFR 71.63 changed to it current wording – "Shipments containing plutonium must be made with the contents in solid form, if the contents contain greater than 0.74 TBq (20Ci) of plutonium." This is a clear easy to follow requirement and when EM-60 revises DOE 460.1B, the requirement to come to HQ for approval for implementation of 10 CFR 71.63 will be removed. Prior to the reissue of DOE O 460.1B, there is still a requirement to come to Headquarters for approval for shipments in DOT Specification containers in quantities of plutonium in excess of 20 curies per package. The Assistant Secretary of Environmental Management, Safety Management and Operations, EM-60, will approve shipments based on the current wording on 10 CFR 71.63.

10 CFR 71.63 Prior to January 26, 2004

§ 71.61

the transport indexes to 50 in a non-exclusive use vehicle, and to 100 in an exclusive use vehicle.

(2) In excess of 10, that package may only be shipped by exclusive use vehicle or other shipper controlled system specified by DOT for fissile material packages. The shipper provides adequate criticality control by limiting the sum of the transport indexes to 100 in an exclusive use vehicle.

§ 71.61 Special requirement for irradiated nuclear fuel shipments.

A package for irradiated nuclear fuel with activity greater than 37 PBq (10⁶ Ci) must be so designed that its undamaged containment system can withstand an external water pressure of 2 MPa (290 psi) for a period of not less than one hour without collapse, buckling, or inleakage of water.

§ 71.63 Special requirements for plutonium shipments.

(a) Plutonium in excess of 0.74 TBq (20 Ci) per package must be shipped as a solid.

(b) Plutonium in excess of 0.74 TBq (20 Ci) per package must be packaged in a separate inner container placed within outer packaging that meets the requirements of Subparts E and F of this part for packaging of material in normal form. If the entire package is subjected to the tests specified in § 71.71 ("Normal conditions of transport"), the separate inner container must not release plutonium as demonstrated to a sensitivity of 10⁻⁶ A₂/h. If the entire package is subjected to the tests specified in § 71.73 ("Hypothetical accident conditions"), the separate inner container must restrict the loss of plutonium to not more than A₂ in 1 week. Solid plutonium in the following forms is exempt from the requirements of this paragraph:

- (1) Reactor fuel elements;
- (2) Metal or metal alloy;
- (3) Vitrified high-level waste contained in a sealed canister designed to maintain waste containment during handling activities associated with transport. As one method of meeting these design requirements, the NRC will consider acceptable a canister which is designed in accordance with the American Society of Mechanical

10 CFR Ch. I (1-1-04 Edition)

Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII, 1995 Edition (earlier editions may be used in lieu of the 1995 Edition). However, this canister need not be designed in accordance with the requirements of Section VIII, Parts UG-46, UG-115 through UG-120, UG-125 through UG-136, UW-60, UW-65, UHA-60, and UHA-65 and the canister's final closure weld need not be designed in accordance with the requirements of Section VIII, Parts UG-99 and UW-11. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the ASME Boiler and Pressure Vessel Code, Section VIII, 1995 Edition, may be purchased from the American Society of Mechanical Engineers, Service Center, 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007. It is also available for inspection at the NRC Library, 11545 Rockville Pike, Rockville, MD 20852-2738 or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.; and

(4) Other plutonium bearing solids that the Commission determines should be exempt from the requirements of this section.

[63 FR 32605, June 15, 1998]

§ 71.64 Special requirements for plutonium air shipments.

(a) A package for the shipment of plutonium by air subject to § 71.88(a)(4), in addition to satisfying the requirements of §§ 71.41 through 71.63, as applicable, must be designed, constructed, and prepared for shipment so that under the tests specified in—

(1) Section 71.74 ("Accident conditions for air transport of plutonium")—

(i) The containment vessel would not be ruptured in its post-tested condition, and the package must provide a sufficient degree of containment to restrict accumulated loss of plutonium contents to not more than an A₂ quantity in a period of 1 week;

(ii) The external radiation level would not exceed 10 mSv/h (1 rem/h) at a distance of 1 m (40 in) from the surface of the package in its post-tested condition in air; and

(iii) A single package and an array of packages are demonstrated to be subcritical in accordance with this part,